

PATENT COOPERATION TREATY PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty) (PCT Article 36 and Rule 70)

REC'D 24 OCT 2005

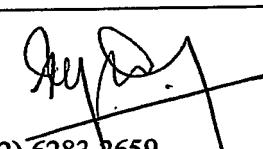
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Applicant's or agent's file reference N-PA-62	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/IB2004/052294	International filing date (day/month/year) 4 November 2004	Priority date (day/month/year) 13 November 2003
International Patent Classification (IPC) or national classification and IPC Int. Cl. ⁷ C07C 49/543		
Applicant JAWAHARLAL NEHRU CENTRE FOR ADVANCED SCIENTIFIC RESEARCH et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 6 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
 - a. ☐ (sent to the applicant and to the International Bureau) a total of sheets, as follows:
 - ☐ sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 - b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)), containing a sequence listing and/or table related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items:

<input checked="" type="checkbox"/>	Box No. I	Basis of the report
<input type="checkbox"/>	Box No. II	Priority
<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/>	Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/>	Box No. VI	Certain documents cited
<input type="checkbox"/>	Box No. VII	Certain defects in the international application
<input checked="" type="checkbox"/>	Box No. VIII	Certain observations on the international application

Date of submission of the demand 10 June 2005	Date of completion of the report 17 October 2005
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer  S. R. IDRUS Telephone No. (02) 6283 2659

Box No. I **Basis of the report**

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1 (b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☒ the international application as originally filed/furnished
- ☐ the description:
- | | | |
|--------|-------------------------------|--------------------|
| pages | as originally filed/furnished | |
| pages* | received by this Authority on | with the letter of |
| pages* | received by this Authority on | with the letter of |
- ☐ the claims:
- | | | |
|--------|---|--------------------|
| pages | as originally filed/furnished | |
| pages* | as amended (together with any statement) under Article 19 | |
| pages* | received by this Authority on | with the letter of |
| pages* | received by this Authority on | with the letter of |
- ☐ the drawings:
- | | | |
|--------|-------------------------------|--------------------|
| pages | as originally filed/furnished | |
| pages* | received by this Authority on | with the letter of |
| pages* | received by this Authority on | with the letter of |
- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to the sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to the sequence listing (*specify*):

* If item 4 applies, some or all of those sheets may be marked "superseded."

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Statement

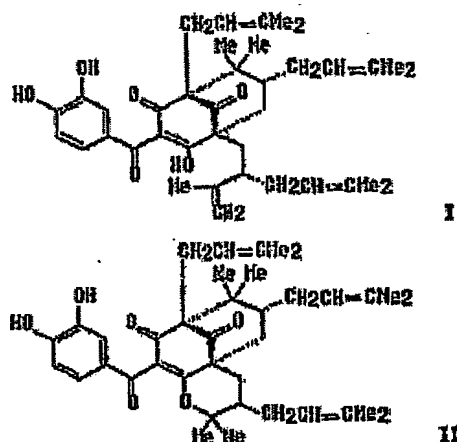
Novelty (N)	Claims	YES
	Claims 1	NO
Inventive step (IS)	Claims	YES
	Claims 1	NO
Industrial applicability (IA)	Claims 1	YES
	Claims	NO

Citations and explanations (Rule 70.7)

The following documents D1-D8 were found in a search of the state of the art:

D1 CAPLUS: AN 1980:567815
 D2 CAPLUS: AN 1982:218063
 D3 CAPLUS: AN 1982:510223
 D4 CAPLUS: AN 1996:127315
 D5 CAPLUS: AN 1998:736142
 D6 JP 8259493 A
 D7 CAPLUS: AN 1978:459974
 D8 CAPLUS: AN 2000:443015

D1 describes the isolation of the isoprenylated benzophenone derivatives camboginol (I) and cambogin (II) in large quantities from the latex of *Garcinia cambogia* and their structure as determined by spectral means. The conversion of (I) to (II), achieved by heating I at 200° for 5 mm, confirmed the absolute configuration of I.



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Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

- 1) **Figure 1.0** does not constitute a single figure because it consists of two formulas provided on two distinct pages of "substitute sheet". (It is noted that the abstract is published with formula I as the accompanying figure).
- 2) A reference to figures in claims is not allowed. For this reason, formulas I and II should be introduced in claim 1 in a suitable way.

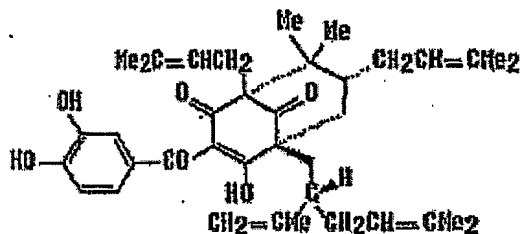
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Supplemental Box

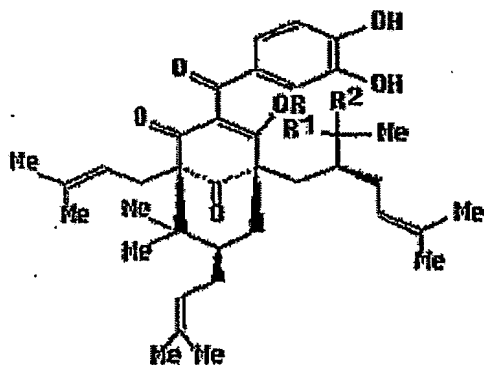
In case the space in any of the preceding boxes is not sufficient.

Continuation of: Box V

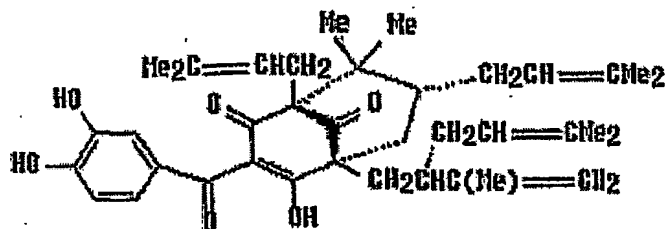
D2 deals with UV data of camboginol in cyclohexane which as well as previously reported spectral data show that it has structure I.



D3 discloses the structure of isogarcinol is I (R, R^1 form a bond, $R^2 = \text{Me}$) and it is identical with cambogin. Garcinol (I; $R = \text{H}, R^1, R^2 = \text{CH}_2$) may be identical with camboginol. They have been isolated from more than one *Garcinia* species, and the relationship between them is brought out more clearly. The unusual UV spectral characteristics of the isogarcinol chromophore are discussed.



D4 describes benzophenone derivatives, garcinol (I) and isogarcinol (II) isolated from the pericarps of *Garcinia purpurea* (Guttiferae), and xanthochymol (III) and a mixture of isoxanthochymol, an enantiomer of II, and its regio-isomer cycloxanthochymol from the pericarps of *G. subelliptica* were evaluated for their antibacterial activity against methicillin-resistant *Staphylococcus aureus*.



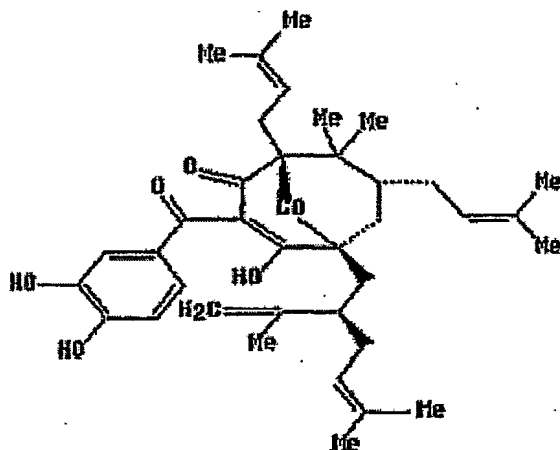
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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

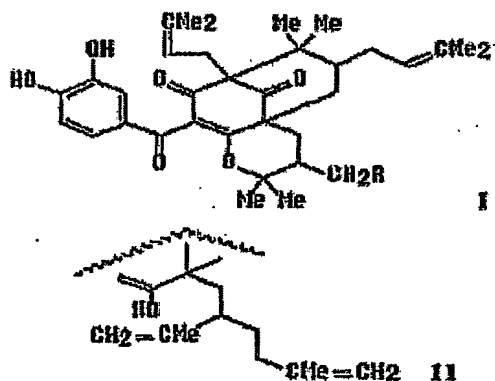
Continuation of: **Box V**

D5 relates to the HIV-inhibitory activity in extracts of *Allanblackia stuhlmannii* and to a new member of the cambo-ginol/guttiferone class of prenylated benzophenones, guttiferone F (1). The structure was solved by extensive NMR analyses and acid-catalyzed conversion to 30-epi-cambogin. This is the first report of I in the genus *Allanblackia*.



D6 deals with plant secondary metabolites, i.e. garcinol, isogarcinol, xanthochymol, isoxanthochymol, and cycloxanthochymol, isolated and purified from pericarp of fruit of *Garcinia suberpectica* Meer and other *Garcinia*. These plant secondary metabolites are reported to be useful for control of MRSA, and do not have acute toxicity.

D7 reports a revision of the structure of isoxanthochymol from I (R Me₂C:CH), previously reported by R. Rao et al. (1973), to I (R = CH₂:CMeCH₂) by comparison of its ¹H and ¹³C NMR spectra with those of xanthochymol (II).



D8 shows the microtubule disassembly inhibitory properties of the known polyisoprenylated benzophenones xanthochymol and guttiferone. The compounds were isolated from the fruits of *Garcinia pyrifera* collected in Malaysia. A structure-activity relationship study, including natural and semi synthetic derivatives, delineated some structural features necessary for the interaction with tubulin within this compound class.

Accordingly, claim 1 does not meet the requirement of novelty and inventive step in the light of the citations.

The compounds of claim 1 are inhibitors of histone acetyl transferases, and have application as anticancer therapeutics. Accordingly, the claimed subject matter has industrial applicability.

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